

IN THE CLAIMS:

- 1 1. (Currently amended) A system for measuring distances, the system comprising:
- 2 a first conductive element ~~conveying a first electromagnetic signal;~~ and a second
- 3 conductive element so disposed with respect to each other that, when the first and second
- 4 conductive elements extend through a dielectric mismatch boundary, a first electromagnetic
- 5 signal will induce ~~conveying a second electromagnetic signal~~ to propagate along the second
- 6 conductive element based on the first electromagnetic signal;
- 7 a transmitter operable to drive a coupler positioned at a point of interest for coupling
- 8 ~~the second electromagnetic signal to the second conductive element in response to a change~~
- 9 ~~in capacitance associated with the first conductive element caused by the first~~
- 10 electromagnetic signal along traversing a part of the first conductive element without also
- 11 driving the second conductive element substantially adjacent to the coupler; and
- 12 a receiver operable to receive the second electromagnetic signal; and
- 13 a processor operable to determine, determining a distance associated with the point
- 14 ~~of interest based at least in part from~~ on a time delay between the first and second
- 15 electromagnetic signals, a distance associated with the dielectric mismatch boundary.
- 1 2. (Previously presented) The system of claim 1 wherein the first electromagnetic signal
- 2 exhibits an ultra-wideband frequency.
- 1 3. (Cancelled) The system of claim 1 further comprising a transmitter for forming the first
- 2 electromagnetic signal.

1 4. (Currently amended) The system of claim 1 wherein the receiver is further operable to
2 detect ~~comprising a receiver for detecting~~ the time delay between the first and second
3 electromagnetic signals.

1 5. (Previously presented) The system of claim 4 wherein the receiver includes an equivalent
2 time sampling circuit.

1 6. (Previously presented) The system of claim 1 wherein the first and second conductive
2 elements form a parallel conductor transmission line structure.

1 7. (Previously presented) The system of claim 1 wherein the first and second conductive
2 elements are flexible.

1 8. (Previously presented) The system of claim 1 wherein the first and second conductive
2 elements exhibit quadrilateral cross-sections.

1 9. (Previously presented) The system of claim 1 wherein the first and second conductive
2 elements exhibit substantially identical cross-sections.

1 10. (Currently amended) The system of claim 21[[1]] wherein the coupler exhibits a length
2 corresponding to at least one-quarter of a propagation velocity pulse length of the first
3 electromagnetic signal.

1 11. (Currently amended) The system of claim 21[[1]] further comprising a supporting
2 material for slidably receiving the coupler in a channel defined therein, the supporting
3 material maintaining a consistent displacement between the coupler and the first and second
4 conductive elements.

1 12. (Previously presented) The system of claim 1 wherein the distance determined by the
2 processor corresponds to a dimension associated with an object.

1 13. (Previously presented) The system of claim 1 wherein the distance determined by the
2 processor corresponds to a displacement between a plurality of objects.

1 14. (Previously presented) The system of claim 1 wherein the distance determined by the
2 processor corresponds to an angular orientation.

1 15. (Previously presented) The system of claim 1 wherein the distance determined by the
2 processor corresponds to a degree of pressure.

1 16. (Currently amended) A method of measuring distances, the method comprising:

2 driving transmitting a first electromagnetic signal along on a first conductive element
3 without also driving a second conductive element, where the first and second conductive
4 elements are so disposed with respect to each other that, when the first and second
5 conductive elements extend through a dielectric mismatch boundary, a first electromagnetic
6 signal will induce a second electromagnetic signal to propagate along the second conductive
7 element;

8 receiving the a second electromagnetic signal ~~based on the first electromagnetic~~
9 ~~signal at a second conductive element, the second electromagnetic signal being coupled to~~
10 ~~the second conductive element in response to a change in capacitance of the first conductive~~
11 ~~element caused by the first electromagnetic signal traversing a part of the first conductive~~
12 ~~element substantially adjacent to a coupler, wherein the coupler is positioned at a point of~~
13 ~~interest; and~~

14 determining, ~~a distance associated with the point of interest based~~ at least in part
15 ~~from~~ on a time delay between the first and second electromagnetic signals, a distance
16 associated with the dielectric mismatch boundary.

1 17. (Currently amended) The method of claim 16 wherein the distance ~~associated with the~~
2 ~~point of interest~~ corresponds to a dimension associated with an object.

1 18. (Currently amended) The method of claim 16 wherein the distance ~~associated with the~~
2 ~~point of interest~~ corresponds to a displacement between a plurality of objects.

1 19. (Currently amended) The method of claim 16 wherein the distance ~~associated with the~~
2 ~~point of interest~~ corresponds to an angular orientation.

1 20. (Currently amended) The method of claim 16 wherein the distance ~~associated with the~~
2 ~~point of interest~~ corresponds to a degree of pressure.

1 21. (New) The system according to claim 1, further comprising:

2 a coupler slidable along the first and second conductive elements for so coupling the
3 first and second conductive elements as to launch the second electromagnetic signal along
4 the second conductive element when the first electromagnetic signal reaches the position of
5 the coupler.

1 22. (New) The system according to claim 1, wherein the first electromagnetic signal
2 propagates from a first end of the first conductive element toward a second end of the first
3 conductive element, and the propagation of the first electromagnetic signal through the

4 boundary will induce the second electromagnetic signal to propagate along the second
5 conductive element toward a first end of the second conductive element.

1 23. (New) The method according to claim 16, further comprising:

2 coupling, with a coupler, the first and second conductive elements as to launch the
3 second electromagnetic signal along the second conductive element when the first
4 electromagnetic signal reaches the position of the coupler, wherein the coupler is slidable
5 along the first and second conductive elements.

1 24. (New) The method according to claim 16, wherein the first electromagnetic signal
2 propagates from a first end of the first conductive element toward a second end of the first
3 conductive element, and the propagation of the first electromagnetic signal through the
4 boundary will induce the second electromagnetic signal to propagate along the second
5 conductive element toward a first end of the second conductive element.

1 25. (New) A system for measuring distances, the system comprising:

2 a first conductive element and a second conductive element;

3 a transmitter operable to drive a first electromagnetic signal along the first
4 conductive element without also driving the second conductive element;

5 a coupler slidable along the first and second conductive elements for so coupling the
6 first and second conductive elements as to launch a second electromagnetic signal along the
7 second conductive element when the first electromagnetic signal reaches the position of the
8 coupler;

- 9 a receiver operable to receive the second electromagnetic signal; and
- 10 a processor operable to determine, at least in part from a time delay between the first
- 11 and second electromagnetic signals, a distance associated with the position of the coupler.